Inventory and biodiversity medicinal plants of dayak tomun society in lopus village Lamandau regency central Kalimantan

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Inventory and biodiversity medicinal plants of dayak tomun society in lopus village Lamandau regency central Kalimantan

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Abstract. Dayak Tomun was one of Dayak tribe lived in the area of Lamandau Regency of Central Kalimantan. Knowledge of medicinal plants of Dayak Tomun society retrieved from ancestral knowledge or their ancestors. The absence of documentation from the study of the knowledge of medicinal plants, then the Dayak Tomun to do Ethnobotany studies. This research aim was examined deeper knowledge and utilization of Dayak Tomun society on the medicinal plant. The method used was the semi-structured interview and participatory observations involving the six key informants of the profession as a shaman. Results of the study were found that 73 species and 69 genera, 43 family medicinal plants with the dominant family (9.59%) were the Zingiberaceae. Part of the medicinal plants that have most frequencies used by Dayak community Tomun is a leaf (38.38%), mixed with the boiled way (50%) and consumed with the drink (41.10%). The tradition of processing and utilization of medicinal plants by the Dayak Tomun society is important to apply and further preserved, so the local wisdom of the traditional medicine will remain awake.

1. Introduction

Indonesia is a country that has a diversity of plants as much as 9600 plants which some 400 tribes in Indonesia utilization plants. Indonesia has one of the largest of the tribe biodiversity from the entire country from Sabang until Merauke. Tribes in Indonesia depend on the natural resources in the life of a day-day [1]. One of the regions in Indonesia that has the diversity of tribal communities is the Isles of Borneo.

Borneo has biodiversity plants on forest vegetation in abundance. The number of potential plants to serve as a source of drugs. Many societies are living in Kalimantan forest area that the harnesses her everyday plants to treat disease [2]. One of the Kalimantan provinces has an abundance of plant medicines are potentially Central Kalimantan.

Central Kalimantan is an area that has the potential to support plants biodiversity of traditional community knowledge. Utilization of plant community characteristics makes the Dayak tribe in Borneo [3]. Local communities in Central Kalimantan has a wide utilization of plants for everyday life, especially for local communities living in forest areas [4]. The tribe that settled lives come within the forests of Central Kalimantan, one of which is the Dayak Tomun.

Dayak Tomun is the community's traditional Dayak of Borneo settled on the forest area in the region of Central Borneo Lamandau Regency. Dayak Tomun society has local knowledge of the

natural environment, such as the utilization of herbs for medicinal [5]. Dayak Tomun society has local knowledge inherited by the ancestors of hereditary, the development of the times will be reduced. This is because of a lot of the next generation who are affected by the modernization culture [6].

Local knowledge in the utilization of medicinal plants on a Dayak Tomun society in the Lamandau has never been examined, documentation and inventoried. The thing that makes the local knowledge will disappear. Therefore, activities regarding medicinal plants inventoried in Dayak Tomun society especially in the Lopus Village should be examined, so that the hope retrieved database and knowledge regarding the types of plants that can be used as medicinal plants.

2. Method and Material

Study area

Research conducted on Lopus Villages in Delang District, Lamandau Regency of Central Kalimantan. The process of researching January-March 2018. In the geographical location is set on research on latitude 1 ° 37 ' 56.90 "S and longitude 111 ° 2 ' 24.29 " E (Figure 1).

Data collection

The process to get the data of the research done through the activities of collected type and number of inventory. The data will be retrieved by first determining the key informants from the Dayak Tomun society in the village of Lopus. Key informants were determined by purposive sampling method. Key Informant of Dayak Tomun society has criteria which are believed as one of the treatments in the Tomun Dayak. Key informant retrieved as many as seven shamans (*moalap* or *poalap*). Logging activities and an inventory of medicinal plants were done with a semi-structured interview [7] and the participatory exploration [8] by involving key informant.

Data analysis

The results of the observation data collection will be analyzed in qualitative descriptive by identifying, determination and an inventory of the types of medicinal plants are used. The overall result will be in tabulation, presentation and discussed by comparing the existing literature.

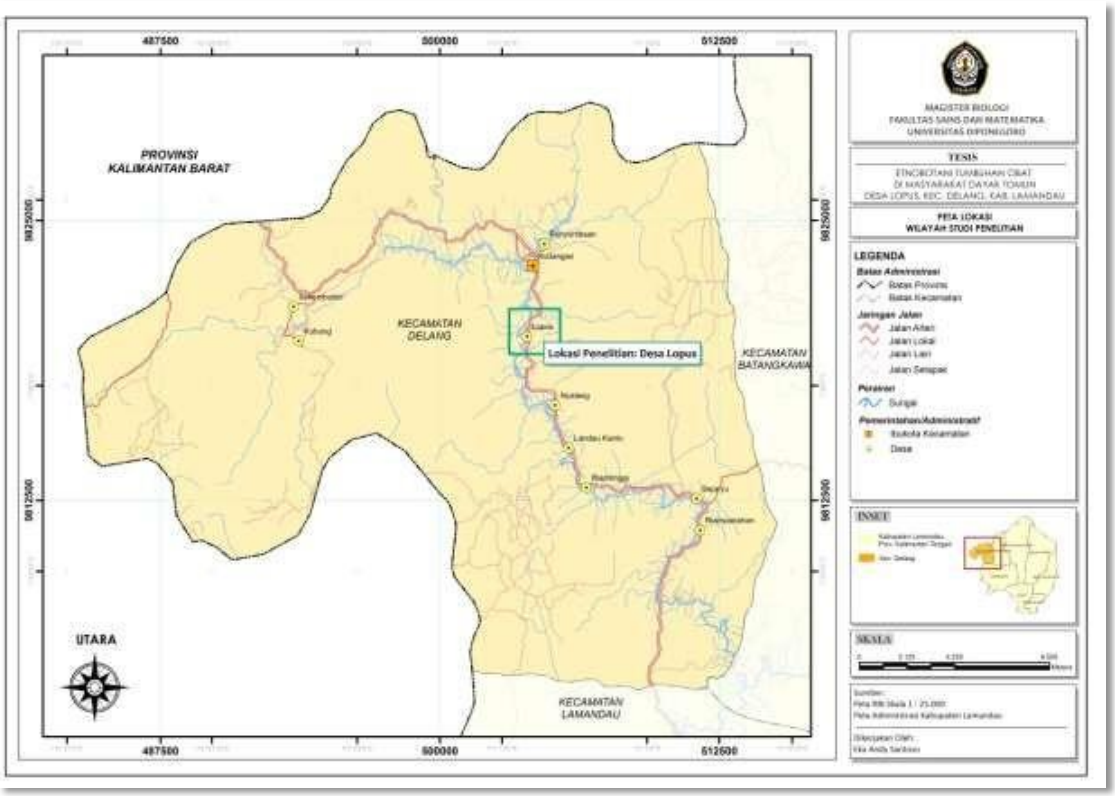

Figure 1. Research Location of Lopus Villages in Delang District Lamandau Regency, Central Kalimantan

3. Results and Discussion

The diversity of types of medicinal plants

Based on the observations obtained as many as 73 plant species with 69 genera and 43 species of that family are used within the Dayak Tomun society in the Lopus Villages (table 1.). These kinds of medicinal plants found in the area of the Dayak Tomun society in the village of Lopus can be said to overflow because of the many plants that could potentially be discovered as a cure.

Types of plants local Dayak community Tomun obtained also have the same types of plants are utilized and found on the other Dayak communities. On Dayak Kendayan society, Daro ', Bukat and Iban in West Kalimantan and South Kalimantan Dayak medicinal plants the same type utilized by the Dayak Tomun society encompasses plants *Tinospora crispa* L., *Kaemferia galanga, Morinda citrifolia* L., *Justicia gendarussa*, *Lansium domesticum*, *Carica papaya*, *Agerantum conyzoide*, *Psidium guajava* L., and *Eurycoma longifolia* Jack [9, 10].

On medicinal plants that are used in the general Dayak Tomun in the Lopus Village also found the kinds of plants that enter into the category of a red list of the IUCN and CITES, among others, *Eusideroxylon zwageri* Teijsm. & Binn. And *Eurycoma longifolia* Jack. Kayu ulin plant (*Eusideroxylon zwageri* Teijsm. & Binn.) in the entry in the category of vulnerable [11], while pasak bumi (*Eurycoma longifolia* Jack) fall into the category of threatened plants [12].

Table 1. The number of types of medicinal plants in Tomun in the Lopus Village of Dayak Society

Local Name		Scientific Name	Genera	Family	Benefit (as a medicine)	Part of Plants
1.	Petikalo/ Topus	*Achasma coccineum* (Blu me) Valeton	Achasma	Zingoberaceae	Influenza, diarrhea, toothache	Leaf, root, fruit
2.	Jerangau	*Acorus calams* L.	Acorus	Araceae	Abdominal diseases, headache, witchcraft	Leaf, stem

					diseases (*tawar*), sawan or convulsions in infants, toddlers and children	
3.	Kaning Kambing	*Ageratum conyzoides* (L.) L.	Ageratum	Asteraceae	Wound medicines	Leaf
4.	Keladi Kulang Kulit/ Sengkulit	*Alocasia zebrina* Schott ex Van Houtte	Alocasia	Araceae	Witchcraft diseases (*tawar*)	Root
5.	Kayu Panas	*Alpinia galanga* (L.) Wild.	Alpinia	Zingiberaceae	Postpartum medicines (*sembrani*)	Root
6.	Pulai	*Alstonia scholaris* Linn	Alstonia	Apocynaceae	Postpartum medicines (*sembrani*)	Root
7.	Nenas	*Ananas comosus* (L.) Merr.	Ananas	Bromeliaceae	Toothache	Root
8.	Pinang	*Areca catechu* L.	Areca	Arecaceae	Postpartum medicines (*sembrani*)	Fruit
9.	Teras Mentawa	*Artocarpus anisophyllus* Miq.	Artocarpus	Moraceae	Sawan (*kepuhunan*) people died	Bark
10.	Kapoak	*Artocarpus elasticus* Reinw. ex Blume		Moraceae	Sawan (*keouhunan*) people died	Stem
11.	Kesumba	*Bixa orellana* L.	Bixa	Bixaceae	Postpartum medicines (*sembrani*)	Leaf, root
12.	Sambang	*Blumea balsamifera* (L.) DC.	Blumea	Asteraceae	Malaria	Leaf
13.	Kayu Walah	*Bromheadia finlaysonia* (lindley) Miq.	Bromheadia	Orchidaceae	Cancer medicines	Leaf, stem
14.	Cabai Rawit	*Capsicum* sp	Capsicum	Solanaceae	Toothache	Root
15.	Pepaya	*Carica papaya* L.	Carica	Caricaceae	Toothache	Root
16.	Honah (Tukas)	*Caryota mitis* Lour.	Caryota	Rutaceae	Itch medicines	Root
17.	Ketepang	*Cassia alata* L.	Cassia	Caesalpiniaceae	Fungal infections of the skin	Leaf
18.	Bura	*Chromolaena odorata* (L.) R.M.King & H.Rob.	Chromolaena	Asteraceae	Wound medicines	Leaf
19.	Kembang Raya	*Clerodendrum japonicum* (Thunb.) Sweet	Clerodendrum	Verbenaceae	Fever for toddlers and children	Leaf
20.	Kayu Ulat	*Coniogramme fraxinea* (D. Don) Diels	Coniogramme	Polypodiaceae	Itch medicines	Root
21.	Sesabung	*Cordyline fruticosa* Back.	Cordyline	Liliaceae	Fever for toddlers and children	Leaf
22.	Tetabai	*Costus speciosus* J.Koenig Sm.	Costus	Zingiberaceae	Postpartum medicines (*sembrani*),	Leaf, stem, root

					fever for toddlers and children, farm animal diseases	
23.	Jangkut	*Curculigo capitulata* O.K	Curculigo	Amaryllidaceae	Itch	Root
24.	Kasai	*Curcuma Domestica* Val.	Curcuma	Zingiberaceae	Abdominal diseases	Rhizome
25.	Sarai	*Cymbopogon citratus* (DC.) Stapf	Cymbopogon	Poaceae	Sprains	Leaf, stem, root
26.	Totanjan	*Dianella nemerosa* Lam.	Dianella	Liliaceae	Postpartum medicines (*sembrani*)	Leaf, root
27.	Simpur	*Dillenia excelsa* (Jack) Martelli ex Gilg.	Dillenia	Dilleniaceae	Wound medicines	Bark
28.	Bomban	*Donax cannaeformis* (G.Forst) K. Schum	Donax	Maranthaceae	Eye diseases	Leaf
29.	Genguho	*Drynaria rigidula* Bedd.	Drynaria	Polypodiaceae	Postpartum medicines (*sembrani*)	Tuber
30.	Pasak Bumi	*Eurycoma longifolia* Jack	Eurycoma	Simarubaceae	Fever, malaria	Root
31.	Kayu Ulin	*Eusideroxylon zwageri* Teijsm. & Binn.	Eusideroxylon	Lauraceae	Sawan (*keouhunan*) people died	Stem
32.	Akar Kuning	*Fibraurea chloroleuca* Miers	Fibraurea	Menispermaceae	Hepatitis	Root
33.	Krayo	*Ficus stricta* (Miq.) Miq.	Ficus	Moraceae	Itch medicines	Root
34.	Seloban	*Geunsia pentandra* (Roxb.) Merr.	Geunsia	Verbenaceae	Cancer medicines	Leaf
35.	Hohidup	*Justicia gendarussa* Burm.f.	Justicia	Acanthaceae	Postpartum medicines (*sembrani*)	Leaf, root
36.	Cokur	*Kaempferia galanga* L.	Kaempferia	Zingiberaceae	Caker sores, fever for toddlers and children, farm animal diseases	Rhizome, leaf
37.	Sesabi Macan	*Lactuca virosa* L.	Lactuca	Araceae	Wart infection on the skin	Leaf
38.	Lansap	*Lansium domesticum* Correa	Lansium	Meliaceae	Itch medicines	Bark
39.	Kayu Angin	*Mallotus paniculatus* (Lam.) Mull. Arg	Mallotus	Euphorbiaceae	Headache	Leaf
40.	Kapuyembun	*Mapania cuspidata* (Miq.) Uittien	Mapania	Cyperaceae	Postpartum medicines (*sembrani*)	Root, stem
41.	Kelonudu	*Melastoma malabathricum* L.	Melastoma	Melastomataceae	Cancer medicines, toothache, diarrhea	Leaf, bark, root
42.	Bongkah	*Merremia peltata* (L.) Merr.	Merremia	Convolvulaceae	Toothache, itch medicines	Root, leaf

43.	Kayu Malu	*Mimosa pudica* L.	Mimosa	Leguminosae	Insomnia, traet trance (*kepuhunan*)	Root
44.	Lalangsap Temuni	*Monstera adansonii* Schott	Monstera	Araceae	Diarrhea, diarrhoea (*membocor*)	Leaf
45.	Mengkudu	*Morinda citrifolia* L.	Morind	Rubiaceae	Cough medicines, tonsillitis	Root, fruit
46.	Pisang Raya	*Musa acuminata* Colla	Musa	Musaceae	Toothache	Root
47.	Jembakah Anak Hantu	*Myrmecodia tuberosa* Jack	Myrmecodia	Rubiaceae	Diseases of internal organs	Tuber
48.	Kayu Kumis	*Orthosiphon aristatus* (Blume) Miq.	Orthosiphon	Lamiaceae	Kidney diseases, ureter disease, treat trance (*kepuhunan*)	Leaf, root
49.	Pohon Rokok	*Phrynium villosulum* Miq.	Phrynium	Maranthaceae	Caker sores, toothache	Leaf, root
50.	Mentawalaman	*Phyllanthus urinaria* L.	Phyllanthus	Euphorbiaceae	Kidney diseases	Root
51.	Sirih	*Piper betle* L.	Piper	Piperaceae	Postpartum medicines (*sembrani*)	Leaf
52.	Tumbak Malo	*Polygonatum biflorum* (Walter) Elliot	Polygonatum	Liliaceae	Caker sores	Leaf
53.	Jambu Pasir	*Psidium guajava* L	Psidium	Myrtaceae	Toothache, disentry, abdominal diseases	Root
54.	Bebaro	*Psychotria viridis* Ruiz & Pav.	Psychotria	Rubiaceae	Postpartum medicines (*sembrani*)	Leaf
55.	Sadawa Manuk	*Pternandra rostrata* M. P. Nayar	Pternandra	Melastomaceae	Caker sores	Root
56.	Sengkubak	*Pycnarrhena cauliflora* (Miers.) Diels	Pycnarrhena	Menispermaceae	Headache, sawan (*kepuhunan*) people died	Leaf
57.	Kayu Guam	*Sauropus androgynus* (L.) Merr.	Sauropus	Phyllanthaceae	Reproduce breast milk	Leaf
58.	Trantang Langit	*Scheffiera actinophylla* (Endl.) Harms	Scheffiera	Araliaceae	Diarrhoea (*membocor*), diarrhea	Leaf, bark
59.	Karlompi	*Scorodocarpus borneensis* (Baili.) Becc.	Scorodocarpus	Olacaceae	Headcahe, itch medicines	Leaf
60.	Kayu Haro	*Shorea koordersii* Brain-Dis	Shorea	Dipterocarpaceae	Smallpox (*lambai*)	Ribber, root
61.	Terung	*Solanum ferox* (L.)	Solanum	Solanaceae	Toothache	Root
62.	Bomban Teluncur	*Stachyphrynium parvum* (Ridl.) Holttum	Stachyphrynium	Maranthaceae	Menstrual care	Leaf
63	Klakai	*Stenochlaena palustris* (Burm.f.)	Stenochlaena	Blechnaceae	Ulcer (*pulung*)	Root
64.	Menterung	*Strombosia ceylanica*	Strombosia	Olacaceae	Abdominal	Bark

		Gradner			diseases	
65.	Tatulo	*Strombosia javanica* Blume		Olacaceae	Caker sores, itch medicines	Leaf, root
66.	Sambang Layang	*Taraxacum campylodes* G.E. Haglund	Taraxacum	Araceae	Wart infection	Leaf
67.	Keringking	*Tectaria herpetocaulos* Holttum	Tectaria	Tectariaceae	Postpartum medicines (*sembrani*)	Root
68.	Putar Ali	*Tinospora crispa* (L.) Hook. F & Th.	Tinospora	Menispermaceae	Fever, malaria	Stem
69.	Balaban	*Tristaniopsis whiteana* (Griff.) Peter G. Wilson & J. T. Waterh	Tristaniopsis	Myrtaceae	Sawan (*kepuhunan*) people died, measles diseases (*tombo balaban*)	Stem, bark
70.	Jerangau Air	*Vallisneria americana* Michx.	Vallisneria	Hydrocharitaceae	Sawan	Leaf
71.	Jahe	*Zingiber officinale* Rosc.	Zingiber	Zingiberaceae	Reproduce breast milk	Rhizome
72.	Kunyit Hantu	*Zingiber zerumbet* (L.) Roscoe ex Sm.		Zingiberaceae	Itch medicines	Root
73.	Indaigandi	*Zizyphus calophylla* Wall.	Zizyphus	Rhamnaceae	Eye diseases	Leaf, root

Types of medicinal plants found in the dominance by the family Zingiberaceae is seven kinds of medicinal plants with the percentage of 9.59% (Table 2). The family of Zingiberaceae generally has aromatic compounds that characterize each type in its utilization by local people [13]. Types of plants in the Family such as *Zingiber officinale* Rosc., *Achasma coccineum*, and *Curcuma domestica* is a potential plant is used as a medicinal plant and is found as well as in cultivated in the courtyard of the community Dayak [14, 9, 15].

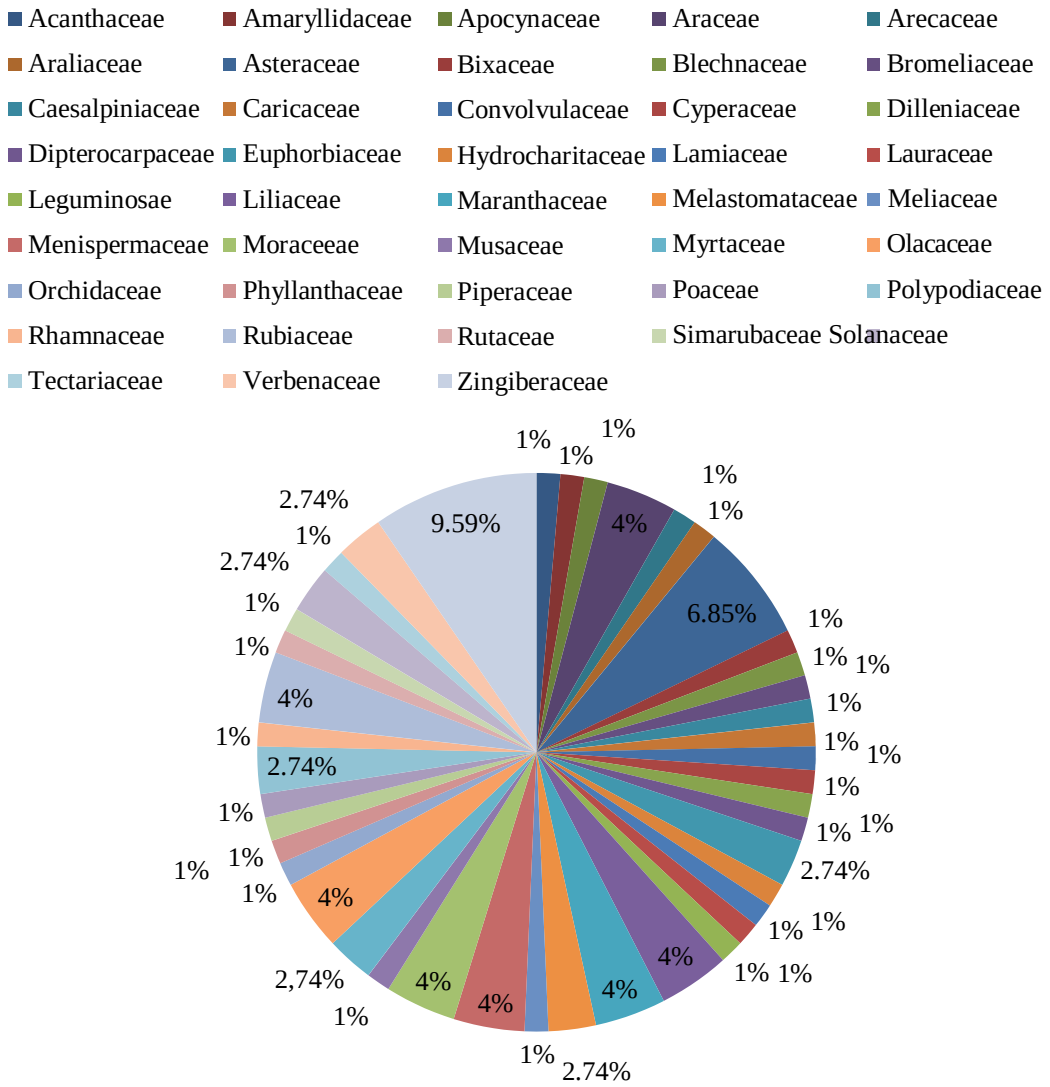

Figure 2. Species medicinal plants of distribution within the identified familia in Dayak Tomun in the Lopus Village of Lamandau Regency Central Kalimantan

The biodiversity of plants parts, preparation, and presentation of the medicinal plants

The observations obtained have done that part leaves of plant organs, many used as a medicinal herb in traditional Dayak community Tomun in the village of Lopus. As much as 36.36% of 38 kinds of medicinal plants are used (Figure 3).

Head in the manufacture of a medicinal herb in traditional Dayak Tomun society many do with boiling. The process of boiling on a Dayak Tomun society obtained as much as 50% (Figure 4 a) The process of boiling one common effort undertaken by the community in traditional medicine [16]. The technique of boiling carried out because it would be more effective to bioactive compounds so that spending will maintain the benefits of a more lasting potion [17].

Results in preparation for the manufacture of medicinal plant herb is consumed with how to drink the amount of 41.10% (Figure 4 b). The consumption of drugs by the way drunk will give you the benefits of a more effective through absorption in the digestive system and streamed into the bloodstream [18] in addition to the Dayak Tomun in the Lamandau lots using the process taken in the consumption of medicinal herb, in Dayak Kendayan, Daro, Bukat, and Iban in West Kalimantan, presenting in a way taken by society to treat disease fever or malaria [8].

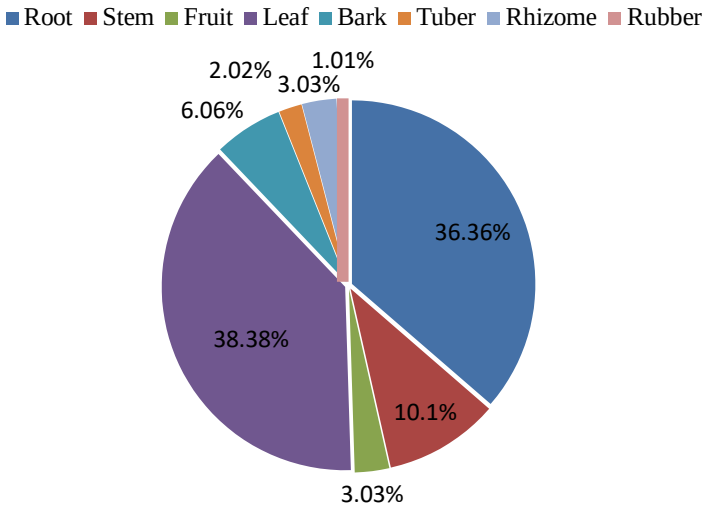

Figure 3. The amount of use of an organ or part of the medicinal plant's Dayak Tomun society in the Lopus Village

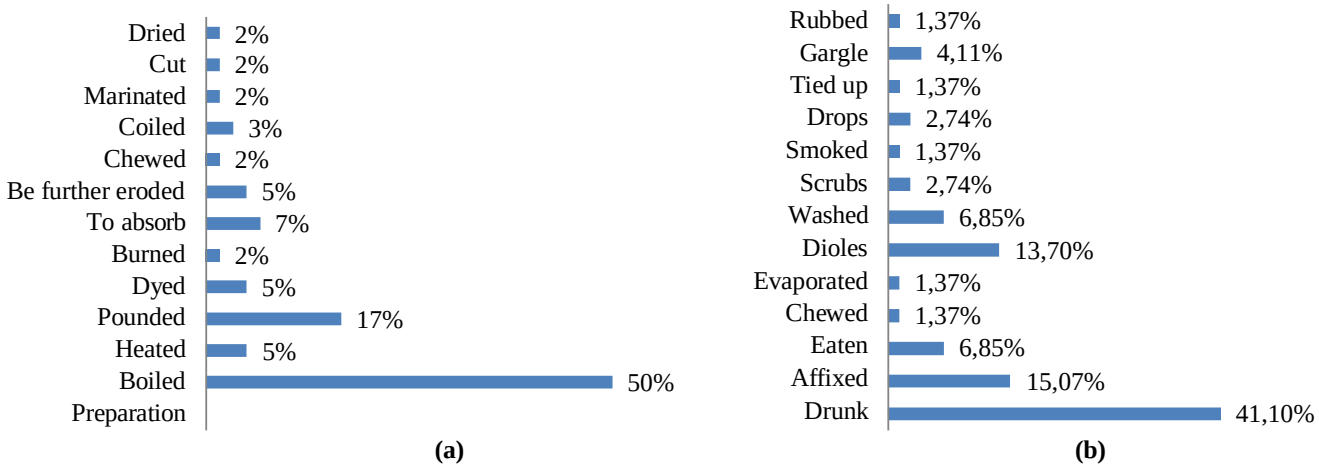

Figure 4. The process of composition materials type of medicinal plants (a) preparation of medicinal plants (b) presentation of medicinal plants

Based on the results of the research of the process of inventory of the utilization of different types of Dayak Tomun society in medicinal plants retrieved that logging type medicinal plants, as well as its utilization, need to be done. Traditional medicine in Dayak Tomun has a unique relationship with the culture of the people. Knowledge of a specific type of plants used as medicine is based on the results of the interaction of humans with the environment. Another reason the importance of digging about logging type of medicinal plants is the abundance of the variety of diseases afflicting the community, making the odds of the existence of the opportunity to seek other types of medicinal plants.

Also, the utilization of medicinal plants by the Dayak Tomun society in the Lopus Villages can benefit regarding the economy if society can offer it wisely and well and by the local wisdom of the community. Such forest, as well as plant species contained in it have the values important to the community as part of the cultural identity of the Dayak Tomun society.

4. Conclusion

Results of the study showed the Dayak Tomun society in the Lopus Village know and utilized as many as 73 species of medicinal plants which are composed of 69 genera and 43 families. The group, most types of medicinal plants found on the family Zingiberaceae, is seven species of medicinal plants with a percentage of 9.59%. Part of the leaf on a whole lot of mixed types of medicinal plants as a medicinal herb in traditional is the percentage of 38.38%. The preparation of a medicinal herb in traditional Dayak Tomun much done by the method of boiling as much as 50% and results of the consumed to drink as much as 41.10%. Utilization of medicinal plants in Tomun in the village of Dayak society Lopus describes the level of interaction between society and the forest for their life.

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